

IN THE CLAIMS:

1. A modified ets2 protein which consists essentially of the amino acid sequence from position 361 to position 446 as set forth in Figure 7.
- 5 2. A modified ets2 protein that comprises a repressor element, binds an ets2 target site and lacks transcriptional activation activity.
3. The modified ets2 protein of claim 2 wherein the repressor element is selected from the group consisting of the KRAB box, and the SNAG domain.
- 10 4. A nucleic acid molecule comprising a nucleotide sequence encoding the modified ets2 protein of claim 1, 2, or 3, operably associated with at least one regulatory region that controls expression of the modified ets2 protein in a cell.
- 15 5. A recombinant cell containing a nucleotide sequence encoding the modified ets2 protein of claim 1, 2, or 3, operably associated with at least one regulatory region that controls expression of the modified ets2 protein in the cell.
- 20 6. The recombinant cell of claim 5 wherein the cell is a cancer cell.
7. The recombinant cell of claim 6 wherein the cell is a human cell.
8. A method for preparing a modified ets2 protein comprising:
- 25 (a) culturing the recombinant cells of claim 5; and
(b) recovering from the cell culture the modified ets2 protein.
9. The method of claim 8 further comprises purifying the modified ets2 protein.
- 30 10. An antisense ets2 nucleic acid.

11. A nucleic acid comprising a nucleotide sequence encoding an antisense ets2 nucleic acid, operably associated with at least one regulatory region that controls expression of the antisense ets2 nucleic acid in a cell.
- 5 12. An ets2-specific ribozyme, comprising an ets2-specific binding site and an autocatalytically cleaving portion.
- 10 13. A nucleic acid comprising a nucleotide sequence encoding an ets2-specific ribozyme, which ribozyme comprising at least a portion of an ets2-specific binding site and an autocatalytic cleaving ribozyme.
14. A delivery complex comprising the nucleic acid molecule of claim 12 and a targeting means.
- 15 15. The delivery complex of claim 14 wherein the targeting means is selected from the group consisting of a sterol, a lipid, a virus, or a target cell specific binding agent.
- 20 16. A method for diagnosing a cancer in a human subject comprising detecting or measuring a ets2 gene product in a subject, in which an elevated level of the ets2 gene product relative to a reference level indicates the existence of cancer.
17. The method of claim 16 in which the cancer is prostate cancer.
- 25 18. The method of claim 16 in which the cancer is lung cancer, pancreas cancer, prostate cancer, liver cancer, testicular cancer, ovarian cancer, cervical cancer, or breast cancer.
19. The method of claim 16 wherein the cancer involves metastases.
- 30 20. A method of treating or preventing cancer comprising administering an effective amount of a compound that decreases the expression of ets2.

21. The method of claim 20 wherein the compound comprises an antisense ets2 nucleic acid or ribozyme molecule, that decreases the expression of ets2 gene.

22. A method of treating or preventing cancer comprising administering to a
5 subject an effective amount of a compound that antagonizes the activity of ets2.

23. The method of claim 22 wherein the compound is a modified ets2 protein that comprises a repressor element, that binds an ets2 target site and lacks transcriptional activation activity.
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24. A method of treating or preventing cancer comprising administering an effective amount of a DNA molecule expressing an antisense ets2, a ribozyme molecule, or a triplex molecule.

15 25. The method of claims 16, 20, 22, and 24 further comprising the step of using chemotherapy and/or radiation therapy.

20 26. A method of reducing tumorigenicity or metastatic potential of cancer cells comprising administering to the individual an effective amount of a compound that decreases the expression of ets2 gene.

27. A method of reducing tumorigenicity or metastatic potential of cancer comprising administering an effective amount of a compound that antagonizes the activity
25 of ets2 protein.

28. A method of sensitizing cancer cells to a cancer treatment or prevention method in an individual having cancer or in whom treatment or prevention of cancer is desired comprising administering to the individual an effective amount of modified ets2
30 protein.

29. A method of sensitizing cancer cells to a cancer treatment or prevention method in an individual having cancer or in whom treatment or prevention of cancer is desired comprising administering to the individual a therapeutic effective amount of antisense ets2 nucleic acid.

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30. The method of claims 16, 22, 24, 26, 27, 28, and 29 in which the cancer is selected from the group consisting of pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, liver cancer, cervical cancer, testicular tumor, lung carcinoma, and melanoma.

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31. The method of claim 26, 27, 28, or 29 in which the cancer treatment or prevention method is selected from the group consisting of chemotherapy and radiation therapy.

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32. The method of claim 28 or 29 wherein said cancer treatment or prevention method employs an alkylating agent, methylating agent, platinum-containing agent, antimetabolite or topoisomerase II inhibitor.

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33. The method of claim 28 or 29 wherein said cancer treatment or prevention method employs tamoxifen, methotrexate, taxol, mercaptopurine, thioguanine, hydroxyurea, cytarabine, cyclophosphamide, ifosfamide, nitrosoureas, cisplatin, carboplatin, mitomycin, dacarbazine, procarbazine, etoposides, campathecins, bleomycin, doxorubicin, idarubicin, daunorubicin, dactinomycin, plicamycin, mitoxantrone, asparaginase, vinblastine, vincristine, vinorelbine, paclitaxel, or docetaxel.

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34. The method of claim 23 in which the repressor element in the modified ETS2 protein is selected from the group consisting of the KRAB box, and the SNAG domain.

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35. The method of claim 23 in which the modified ets2 protein consists essentially of the amino acid sequence from position 361 to position 446 as set forth in Figure 7.

5 36. The method of claim 20, 21, 22, 23, 24, 28, or 29, in which the cancer has metastasized.

37. The method of claim 26, 27, 28, or 29 in which the cancer is refractory to treatment with an agent selected from the group consisting of alkylating agent, methylating
10 agent, platinum-containing agent, antimetabolite and topoisomerase II inhibitor.

38. The method of claim 28 or 29, in which the cancer is melanoma and the cancer treatment or prevention method employs cisplatin.

15 39. The method of claim 28 or 29, in which the cancer is melanoma and the cancer treatment or prevention method employs tamoxifen.

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